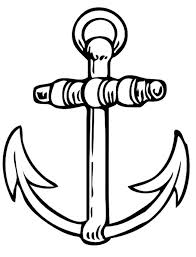
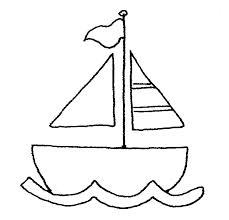
[](http://www.google.com/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&ved=0CAcQjRw&url=http://3d-pictures.picphotos.net/anchor-black-hair-black-legwear-blush-blush-stickers-brown-hair/safebooru.org*samples*1063*sample_9d9098a0e58ba1e077dc3d69becf504a8de96008.jpgquestionmark1101164/&ei=Au_bVIKFEsqyggT41IDgCA&psig=AFQjCNETwQ6fmUYCkVaeEodvPZIH2MQLvQ&ust=1423786086138033)[](http://www.google.com/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&ved=0CAcQjRw&url=http://motor-kid.com/sail-boat-clip-art-black-and-white.html&ei=AO7bVOSzFYqpgwSqtoDQBQ&psig=AFQjCNGqwbk7vxIkbEkcRnO6DO0rYLrbIQ&ust=1423785840486296)

Science in a Bag – Teacher Page

**Sink of Float?**

Grade Level: 1st Grade

Standards: GLE 0107.9.1 Classify objects according to their physical properties.

Checks for Understanding: 0107.9.1 Classify solids according to their size, shape, color, texture, hardness, ability to change shape, magnetic attraction, whether they sink or float, and use.

Task Objective:

The learner will be able to classify objects according to their physical properties and explain why some objects sink or float after they have observed what happens when certain objects are placed in different liquids.

Explanation:

Various solid objects sometimes sink or sometimes float in liquid. Students will be able to observe and discover some of the physical properties that affect these different interactions. Water and Sprite will be used to show students that carbonated drinks have gas, carbon dioxide, in them that is responsible for creating the fizz we see. While both water and Sprite are liquid, students will discover they have different properties. Students will place macaroni noodles, beans, and raisins in both liquids and observe what happens. The students will write down what they believe will occur with each object in each liquid and see if they were correct after making their observations. Students will observe that the fizzy gas bubbles in the Sprite stick to the rough surface of the solid objects to lift them up to the surface to float and that once they reach the air and pop, they will sink back down again and repeat. They will observe the objects sinking in the water since there is no fizzy gas to lift the solid objects up. Students will observe which solid object floats the best. Students will observe that raisins float best and how the raisins appear to dance as the carbon dioxide bubbles pop and reattach over and over again for awhile making them bob up and down.

Academic Vocabulary:

texture: the way a surface feels

liquid: a substance that has no fixed shape and flows

solid: an object with a fixed 3-dimensional shape

gas: a substance with no fixed shape that can expand

float: to remain at the surface of a liquid

sink: to drop to the bottom of a liquid

physical properties: a property to describe a physical object

carbonation: saturation with carbon dioxide gas

The Vocabulary Card Sort will be use as a Formative Assessment Classroom Technique (FACT #4). Each student will receive a bag with a card sort that matches a picture to a word definition prior to the activity to pre-assess their current knowledge of the academic vocabulary. The card sort will be performed again at the end of the activity to assess their level of understanding of the academic vocabulary afterward. Then, they will tape their matching cards in their Interactive Notebook.

Common Misconceptions:

* Objects float in water because they are lighter than water.
* Materials can only exhibit properties of one state of matter.

Real World Connection:

Students will be able to come up with other objects they want to observe sinking or floating. They can make connections to how they float in water when wearing arm floaties or sitting on a float because the floatation devices are filled with air which is a gas.

Connections Across the Curriculum:

Language Arts:

SL.1.1 Participate in collaborative conversations about grade 1 topics and texts with peers and adults in small and larger groups.

b. Build on others’ talk in conversations by responding to the comments of others through multiple exchanges.

Students will collaborate in small groups during their experiment. They will participate in conversations about what they think will happen and why. They will have the opportunity to respond to their group members and practice speaking and listening in a collaborative group setting.

W.1.1 Write opinion pieces in which they introduce the topic or name the book they are writing about, state an opinion, supply a reason for the opinion, and provide some sense of closure.

Students will write a few sentences in their interactive notebook prior to the experiment expressing their opinion on what they think will happen with the materials being used and why they think that. Once they have done their observations, students will write what actually did happen and why they think that happened.

Math:

1.MD.4 Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

Students will fill out a table for their experiment in their interactive notebook to compare the different results of mixing the liquids and the solid objects. They will collect data and interpret which category of liquid has more floating objects and which one has more sinking objects. They will also compare which object floated the best from the data they collected.

References:

Activity and explanation:

<http://www.funology.com/dancing-raisins/>

Common misconceptions:

<http://amasci.com/miscon/opphys.html>

Real-world connection:

<http://www.stevespanglerscience.com/lab/experiments/dancing-raisins-the-bubble-lifter>

Vocabulary:

<http://dictionary.kids.net.au/>

Images:

<http://www.clinicaladvisor.com/a-little-carbonation-helps-the-medicine-go-down/article/287543/>

<http://cmillerscience.blogspot.com/2013_09_01_archive.html>

<https://www.etsy.com/market/cgreenphoto>

<http://www.canstockphoto.com/images-photos/pen.html>

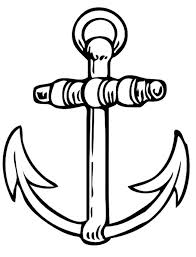
<http://hlaluminum.en.made-in-china.com/product/ZBsxriSYLzcj/China-3003-Embossed-Aluminium-Plate-with-Orange-Peel.html>

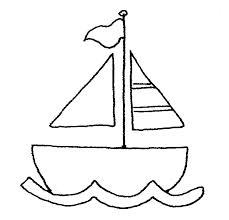
<http://www.vectors4all.net/vectors/white-cloud-clip-art>

<http://www.mormonshare.com/lds-clipart/duck-floating-in-tube>

<http://motor-kid.com/sail-boat-clip-art-black-and-white.html>

[http://3d-pictures.picphotos.net/anchor-black-hair-black-legwear-blush-blush-stickers-brown-hair/safebooru.org\*samples\*1063\*sample\_9d9098a0e58ba1e077dc3d69becf504a8de96008.jpgquestionmark1101164/](http://3d-pictures.picphotos.net/anchor-black-hair-black-legwear-blush-blush-stickers-brown-hair/safebooru.org*samples*1063*sample_9d9098a0e58ba1e077dc3d69becf504a8de96008.jpgquestionmark1101164/)

[](http://www.google.com/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&ved=0CAcQjRw&url=http://3d-pictures.picphotos.net/anchor-black-hair-black-legwear-blush-blush-stickers-brown-hair/safebooru.org*samples*1063*sample_9d9098a0e58ba1e077dc3d69becf504a8de96008.jpgquestionmark1101164/&ei=Au_bVIKFEsqyggT41IDgCA&psig=AFQjCNETwQ6fmUYCkVaeEodvPZIH2MQLvQ&ust=1423786086138033)

[](http://www.google.com/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&ved=0CAcQjRw&url=http://motor-kid.com/sail-boat-clip-art-black-and-white.html&ei=AO7bVOSzFYqpgwSqtoDQBQ&psig=AFQjCNGqwbk7vxIkbEkcRnO6DO0rYLrbIQ&ust=1423785840486296)

Science in a Bag – Student Page

**Sink or Float?**

Grade Level: 1st Grade

Standards: GLE 0107.9.1 Classify objects according to their physical properties.

Checks for Understanding: 0107.9.1 Classify solids according to their size, shape, color, texture, hardness, ability to change shape, magnetic attraction, whether they sink or float, and use.

Task Objective:

I can describe the physical properties of different objects and predict if an object might sink or float.

Materials Needed:

Pencil, interactive notebook, vocabulary card sort cards, 6 small clear plastic cups, 1 small bottle of water, 1 small bottle of Sprite, 10 dried pinto beans, 10 uncooked macaroni noodles, 10 raisins, 1 Student Page for each student

Procedures:

1. After setting out the Vocabulary Card Sort cards face up, match the vocabulary pictures cards to the definition cards you think go together. Work together with your group!
2. In your Interactive Notebook, write about what you think will happen to each object in the different liquids you will use. How might the pinto beans, macaroni, and raisins behave the same or differently in the water or the Sprite? Use the second hand on the clock and time yourself for 2 minutes while writing your thoughts.
3. Fill out your “Physical Properties” table on your data handout making sure to describe the texture, the shape, the color, and the hardness of the pinto beans, macaroni, and raisins. Cut out and then tape into your Interactive Notebook.
4. Locate your “Sink or Float” table on your data handout. This is where you will record your observations. You will write one of the words *sink* or *float* after observing whether or not the pinto beans, macaroni, and raisins sink or float in the water and whether or not they sink or float in the Sprite.
5. Set up the 6 small plastic cups on the table.
6. Pour water into 3 of the cups to the black fill line on the side. The water cups are labeled W1, W2, and W3.
7. Pour Sprite into 3 of the cups to the black fill line on the side. The Sprite cups are labeled S1, S2, and S3.
8. Drop 5 pinto beans into the water cup labeled W1 and 5 pinto beans into the Sprite cup labeled S1. Observe and record your data.
9. Drop 5 macaroni noodles into the water cup labeled W2 and 5 macaroni noodles into the Sprite cup labeled S2. Observe and record your data.
10. Drop 5 raisins into the water cup labeled W3 and 5 raisins into the Sprite cup labeled S3. Observe and record your data.
11. Answer these questions in your Interactive Notebook: Which solid object floated the best in which liquid? Why do you think it floated the best? Which liquid did objects float best in? Why do think that liquid made things float? What other objects would you want to test in each of the liquids and what do you think will happen to those objects based on what you observed today with your experiment.
12. Talk about your observations with your group. Talk about different ways you float in water using floats with your group.
13. Vocabulary Card Sort time! Again, you will match the vocabulary pictures cards with their definitions cards. Once you feel you have the correct matches, tape them into your Interactive Notebook.
14. Clean up time! See instruction at end of page.

Academic Vocabulary:

texture, liquid, solid, gas, float, sink, physical properties, carbonation

Clean-up:

Take the cups one at a time to the sink. Place colander in sink and pour liquids into the colander. Throw the solid objects in the colander from the cups in the trash. Dry the cups and spoon with a paper towel and place back into Science Activity bag. Replace caps tightly on water and Sprite bottles and replace in Science Activity Bag. Place Vocabulary Card Sort cards with paper clip back in Science Activity bag and turn into the teacher.

Data Handout

|  |  |  |  |
| --- | --- | --- | --- |
| **Sink or Float?** | Pinto Beans | Macaroni | Raisins |
| Cup of Water |  |  |  |
| Cup of Sprite |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Physical Properties** | Pinto Beans | Macaroni | Raisins |
| Texture |  |  |  |
| Shape |  |  |  |
| Color |  |  |  |
| Hardness |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| A little carbonation helps the medicine go down carbonation | saturation with carbon dioxide bubbles | [http://3.bp.blogspot.com/-5-r_8T9TYRA/Uj322kLmM0I/AAAAAAAAAX8/Z_CpIvYr9rQ/s320/Physical+Properties+Foldable+and+Mini+Lab3.png](http://3.bp.blogspot.com/-5-r_8T9TYRA/Uj322kLmM0I/AAAAAAAAAX8/Z_CpIvYr9rQ/s1600/Physical+Properties+Foldable+and+Mini+Lab3.png)  physical properties | a property to describe a physical object |
| Water Drops Black & White Liquid Sculpture Macro Speed Photography "Angels Among Us"  liquid | a substance that has no fixed shape and flows | [http://ec.l.thumbs.canstockphoto.com/canstock10014760.jpg](http://www.google.com/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&ved=0CAcQjRw&url=http://www.canstockphoto.com/images-photos/pen.html&ei=WOPbVI78GMOegwSt34Jg&psig=AFQjCNHr4-j1sCOBiVB7x3FUPn2FhC1Jog&ust=1423783009492873)  solid | an object with a fixed 3-dimensional shape |
| [3003 Embossed Aluminium Plate with Orange Peel](http://hlaluminum.en.made-in-china.com/productimage/ZBsxriSYLzcj-2f1j00yZRQEfzMYjch/China-3003-Embossed-Aluminium-Plate-with-Orange-Peel.html)  texture | the way a surface feels | White Cloud clip art  gas | a substance with no fixed shape that can expand |
| cg_duck-floating-in-tube.gif  float | to remain at the surface of a liquid | the sinking ship  sink | to drop to the bottom of a liquid |